

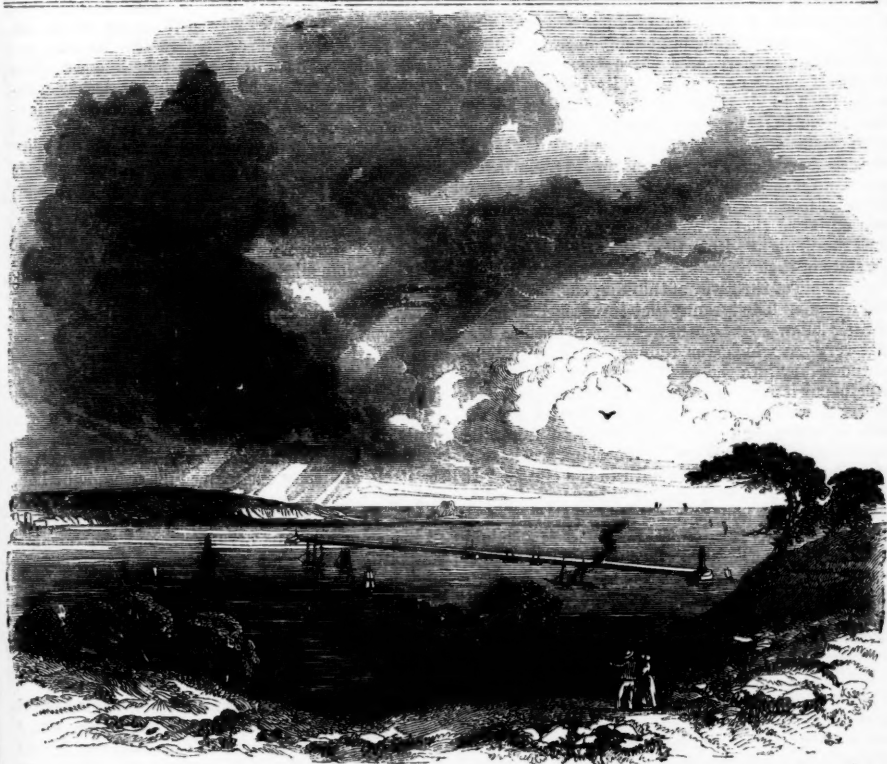
THE LEISURE HOUR

A FAMILY JOURNAL OF
INSTRUCTION AND RECREATION.

No. 12.]

THURSDAY, MARCH 18, 1852.

{ PRICE 1d.
STAMPED 2d.



VISIT TO THE PLYMOUTH BREAK- WATER.

We had just been on board the *St. George*, admiring that noble specimen of naval architecture, with all its curious arrangements for the accommodation of upwards of 800 seamen—a floating city in fact, when we gladly took the opportunity of proceeding in our boat from the Hamoaze, where lay this great ship of war, to that wonderful work of art which guards the Plymouth Sound, forming a bulwark of strength and safety which even the violence of the sea-storm cannot overturn.

VOL. I.—NO. 12.

On a bright autumn morning, as it happened to be when we were there, the Sound presents a scene of rare magnificence, beauty, and interest. Rowing out of the Hamoaze, which forms the entrance to the Tamar—one of the many rivers rich in varied loveliness which intersect old England—we pass the well-wooded park of Mount Edgecumbe on the right; while, on the left, outspreads the good town of Plymouth, and before us sweeps the Sound, about three miles in breadth and length, forming a noble basin lined with rocks. Pointing our little bark seaward, and turning to look behind, we have a view of the noble elevation and esplanade

N

of the Hoe, the favourite promenade of the townspeople, flanked on the one side by the famous limestone quarry, and on the other by the well-fortified citadel; while, as the boat gets nearer to sea, the eye, still gazing on what it leaves behind, rests on the weather-beaten walls of rock which guard the Catwater, or turns to look on the contrasted verdant slopes and rich foliage on the opposite Edgecumbe side, which at length reveals the opening to Cawsand Bay.

Let us pause for a moment, and as the boat sleeps in its shadow, and the gentle ripples glittering in the sunshine look like so many silver minnows playing on the surface, indulge in a passing dream of other days. Plymouth Sound will surely carry back any one acquainted with English history, and imbued with sympathy for the heroes of religious freedom, to the time of James I, and bring before his imagination that quaint-looking old vessel which once harboured there—now the world-known Mayflower—bearing in its bosom the Pilgrim Fathers, destined by Providence to be the founders of the American commonwealth—a vessel more than worthy of being coupled with the Grecian Argos, and one which the Plymouth corporation might well be pleased to quarter in their armorial bearings. We can fancy the brave-spirited men on board that memorable ship, as it lies on a dark rough night within the Catwater, talking over the state of their oppressed country, where conscientious people of their way of thinking could no longer find a home. The tyranny that threatened so many of their fellow-countrymen would seem to them like that very sea which was rolling yonder with tempestuous fury into the unsheltered Sound. One of hopeful spirit might have said: "The Lord in whom we trust will one day raise up a barrier against such injustice, and guard our children from the storms which emperil us." We think we hear a rejoinder from one of little faith to the effect: "It may be so, my brother, but my hope lags far behind thine. Nothing is impossible to God; but to me it seemeth as strange, that men like us should ever have peace and liberty in this land of bondage—that a bulwark should ever appear, strong enough to guard us from the tempests of tyranny—as it would be for a rock to rise out of these waters and defend this town and harbour from the fury of the southern gale!"

While this fancied conversation falls on the ear, it is not a little interesting to turn and find uprising from the sea limit of this famous Sound a real wall of rock, stretching like a reef the distance of a mile, and offering an effectual front of resistance to the angriest billows. What might have seemed once as miraculous as the return of Samaritan plenty appeared to the doubting lord of whom we read in the book of Kings, has actually occurred. Through the skill, science, and power which God hath given unto the children of men in this favoured land, a breakwater has been reared which vies with the marvels of nature; and with gratitude we cannot but remember and acknowledge that He, in his gracious providence, has long since raised for us Englishmen of the nineteenth century, constitutional barriers against despotic misrule and cruelty, which would have seemed to some, two hundred and thirty years ago, a fond and idle dream. In matters both of science and government, God's

hand has wonderfully placed us ahead of our honoured forefathers.

But we must push on our boat to the breakwater. How it swells in height and breadth! Looking at it from the Hoe, three miles distant, it appeared only like a thin dark line on the water. The captains who tell us they have seen the great serpent, might, we suppose, at such remoteness, mistake it for that mysterious creature. Now it grows upon us amazingly, and as we near it at low water, we find ourselves touching a broad stone pier thirty-five feet high. But it does not rise like a wall perpendicularly from the water. It gently slopes like a beach. The promenade on the highest level is reached by three flights of steps. The landing-place is upon the middle of the Shovel Rock, in the form of a letter T. We ascend; and here we are on a broad highway in the midst of the sea, with the freshest of ocean breezes fanning us; three miles of beautiful calm lake-like water on one side; the entrance into the broad Atlantic, appearing like the Atlantic itself, on the other side; the booming waves, the everlasting breakers, sending up without a pause the monotonous yet soul-inspiring music of the deep. It is an indescribable position that the stranger feels himself occupying as he lands on this rude strip of art-made *terra firma*, in the midst of the immeasurable waste of sea. We were never on the Chinese land-wall, where chariots might run and turn; but this ocean-wall, where omnibuses might run and pass each other, we should think far more worth seeing. It is a surprising work of human invention. An accomplished friend, who was pacing along its firm stone pavement with us, observed it might well be substituted for Paley's example of the watch found on the ground, as an example of intelligent design. Truly it might. This breakwater here appears anything but like an *accident*; equally so do the sea itself, and those encircling hills around the bay, and the regularity of ocean tides, and the gentle, elastic, life-sustaining air, and the watery cisterns of the clouds sailing over-head, and the burning lamp of day, hung up there to make manifest to our eyes the whole, and we ourselves, material and immaterial, with senses and souls; equally *unaccidental* is the appearance of the entire picture. The application of the argument in proof of a divine intelligent contriver of the universe is obvious and irresistible.

But why was this breakwater designed—and how contrived and executed—and what its results?

The old people of Plymouth will tell you fearful stories of shipwreck which occurred when they were young, or which their seafaring fathers used to relate. It is said that on an average ten English merchant vessels are wrecked on our coast every week. Of the fifteen thousand English vessels, containing one hundred and fifty thousand souls, which pass the Land's-end every year, how many on returning perish within sight of shore! The proportion of the number lost in and about Plymouth Sound in former days was immense. The Plymouth church-yards and burial-grounds are full of the memories of agonizing incidents. With bursting hearts, widows and orphans innumerable have looked from the Hoe on the treacherous waters which engulfed all they loved on earth. The whole of the south-western coast of England

is beset with perils. Lord Howe used to remark that Torbay was "likely one day to prove the grave of the British fleet." Plymouth Sound was more dangerous than Torbay. It was exposed to a tremendous swell, and the water being shallow, the vessel was dashed on the hard ground and went to pieces.

As early as 1788, a plan was submitted to the government by the late Mr. Smith, master attendant of Plymouth Dockyard, for rendering the Sound a secure place of anchorage; but it was not till 1806 that any active measures were taken for the purpose. The importance of a safe roadstead for ships of war was at that time pressingly felt, and therefore eminent engineers were appointed to inspect the coast and sea, and report the best plan of contriving a harbour. In 1811, Messrs. Rennie and Whidbey proposed a mole or breakwater to run across the middle of the Sound, its eastern extremity to be about 60 fathoms to the eastward of St. Carlos Rocks, and its western end about 300 fathoms westward of the Shovel Rocks. Mr. Smith had proposed to run out a pier from Statten Point to the Panther Rock; and Mr. Moyle, in 1812, suggested one from Rams Cliff Point to the same rock; but after much consideration Messrs. Rennie and Whidbey's scheme was adopted. It was determined to build the breakwater of blocks hewn from the limestone quarries at Oreston, in Catwater, which were purchased by government from the Duke of Bedford for 10,000*l*. The estimate of the expense was a little above a million; the time for the erection to be six years. As is not usually the case, though the period employed far exceeds what was stated—for the breakwater is not finished yet—the actual cost is not likely to be very much beyond the sum just specified.

The Prince Regent's birthday, the 12th of August, 1812, was fixed for the commencement of this herculean undertaking. From the quarries which had been opened on the 7th, a vessel brought to the spot where we are now standing a gigantic stone of several tons weight, and plunging it into the sea laid the foundation of this novel structure. Stones continued to be brought day after day, to be discharged upon the spot, the outline of the breakwater being marked by two tiers of buoys. Of course it was a long while before the stones had become so piled as to appear above water-mark. Till then, vessels of peculiar construction brought their limestone cargoes and shot them out. They had sterns very high and very wide, containing two large ports, side by side, the doors of which, when lowered on their hinges, formed inclined planes. In at these doors ran trucks containing stones from the quarry, and they moved along iron railways fixed in the hold. Sixteen trucks could be accommodated in this way. There were also railways on deck, which could in some cases carry six or eight of these loaded wagons. The ports were closed, and away went the stone-burthened ship to the line of buoys. Then, after the vessel had anchored between the lines, the stern-ports were opened, the trucks one after another were run out to the edge, the stone was canted into the water, and the empty vehicle hoisted up to the vessel deck, ready to be run out at the quarry quay for reloading. Forty or fifty minutes sufficed for the discharge of one of these cargoes. In a single week, as many as

15,379 tons of stone have been thrown into the deep to contribute to this ever-growing breakwater. On the 31st of March, 1813, to the joy of all concerned, the corners of the stones were seen peeping above the surface when the tide ran out. The blocks now soon began to prevent the vessels from discharging their cargoes as they had done; so a new plan was adopted. A very strong mast was placed in a vessel, and a boom or sheer fixed to it, whence it was called a sheer vessel. The boom or sheer formed a sort of crane, projecting far beyond the vessel's side, so that by this means stones were raised out of the hold, and swung into their proper place upon the surface of the spreading heap. When the work had been brought as high as was necessary, blocks as square and as even as possible were fixed on the top, so as to form a smooth causeway for persons to walk upon.

When the men had been toiling at the construction of this monster mole for about five years, there came to try its strength one of those tremendous "son'-westers," against the rage of which it was intended to be a defence. On the 9th of January, in the year 1817, it blew a hurricane, which raised the sea six feet above its usual height at spring tides. The breakwater was found to be no small defence. A sloop of war and a schooner, anchoring without its shelter, "were driven to the head of the Sound and lost; while a deeply-laden collier, anchored within, rode out the gale in safety."* The shipping in the Catwater, too, escaped though it was considered that, but for the friendly mole, they must have sustained immense damage. The storehouses and buildings on the margin of the water were also preserved, which, but for the same defence, must doubtless have been swept away.

But the blows of Neptune were found, after this battle of the elements was over, to have left some pretty deep indentations on the breakwater. A mass of stones, 200 yards in length, and 30 in breadth, was dislodged and completely rolled over. But though the power of the waves here beat the art of man in the then existing stage of its progress, that art was able in the course of time to repair the damage, and the work continued to advance and prosper. But in 1824 another testing hurricane occurred in the month of November, surpassing in violence the former one—a hurricane still remembered with terror by many of our sailors on the southern coast. Again the mighty breastwork of limestone repelled the beating waves, and probably saved the lower part of Plymouth from utter demolition, for now the tide rose seven or eight feet above its usual highest mark. In proportion to the increased power and peril of this storm was the damage done to the breakwater; 785 yards, or one half of the work then finished, had been torn up, and blocks from three to ten tons in weight had been loosened and tossed about in the hands of the wild spirit of the storm. Nearly 200,000 tons were lifted up and moved from their position during that awful night. As we stand upon the breakwater now, with a calm sea around, we hardly dream of its frightful power when enraged by the winds; but these facts just stated forcibly reveal it. They remind us, too, of some

* See a little work, called "Guide to the Breakwater;" a very scientific and useful production.

wind-storm symbols we saw in the Great Exhibition; huge pieces of canvass sails, rolled up, and threaded together in inextricable coils and knots, like skeins of cotton which a child had played with—all the work of the winds.

The injury done to the breakwater was attributable to an error in its construction, which experience now taught its architects to repair. The crevices between the rough blocks had been left open, consequently they were filled with air; and so, when the billows came curling over them, they compressed the air, which served as a wedge to loosen the stones. To obviate this danger in future, it was determined to occupy the interstices with rubble, and thus to form one compact mass into which no water could penetrate. The fall of the slope on either side was also decreased to five feet horizontal for one perpendicular, "and large blocks of granite, cut and dove-tailed, were used at the base, and at first were fixed with a lewis, or plate of iron; one end of which was lodged in the stone beneath, with an eye at the top through which a bolt three inches in diameter passed into each stone, thus linking the whole together." But this latter plan was afterwards discontinued, because the iron was found to swell with rust, and to burst the stones in which it was lodged. The work is not even yet entirely completed: smooth stones are still wanting to pave the surface of the eastern arm; and machinery and other appliances remain, around which a few workmen may be seen, slowly carrying on to its final accomplishment this modern wonder of the world. The largest number of men ever employed on the works during any year from the commencement—those in the quarry and vessels included, as well as on the mole—was 712, and that was in the year 1816. In 1833 the total was only 297, of whom but 6 were engaged on the breakwater. It has for a long time past gone on but lingeringly.

Now let us more particularly survey its form and dimensions. Having walked from end to end, we find it an enormous roadway, straight in the centre, but a little bending in the two arms, which form the extremities. The whole length is 1700 yards, of which the centre embraces 1000. The breadth of the top is 45 feet; of the inner slope, 110; of the outer, 105. The whole width of the base of this mighty structure is 410 feet—four-fifths, and more, of the whole extent of St. Paul's cathedral from east to west. And here it lies, and is likely long to last, a monument of human skill, and a means of human safety. Its effect in stemming the incursions of storms, when the billows literally run mountains high, and dash their spray as if it would reach the clouds, is visible on the rocky sides which form the basin of the harbour; for scanty verdure now dyes the rock with green far down towards the water's edge, whereas before the seas beat so high against it as to destroy all vegetation almost to the summit. A large amount of property has, no doubt, been saved both in vessels and buildings; but what is of far more importance, numbers of human lives have been preserved from untimely death. Above 200 sail have at one time taken refuge within it.

But we must approach the lighthouse at the western end. There it rises up solid from below the level of low water in the form of an inverted

arch, containing about 15,000 feet of granite. It was commenced in February, 1841, and finished in November, 1843. The height is 59 feet, and the structure forms a not inelegant tower, but expressive still more of strength than of beauty. The interior is worth examination. We ascended the narrow staircase, almost like the ladder of a ship, and reached the lower of the five floors into which it is divided. The first is an oil-room, the cisterns all polished, and cleanly in the extreme. The next is a store-room, filled with glasses, lamps, wicks, etc., all kept in admirable order and arrangement. Above is the dwelling-room, with cooking-stove and a little simple furniture, altogether looking like a small cabin in a ship. Higher still is the dormitory, and then you reach the watch-room. The apparatus for diffusing the illumination on its top—so welcome to the eye of the home-bound mariner—is very curious, consisting of large plates or ribs of cut-glass, placed in a circular form to reflect and refract with augmented brilliancy the intense light which burns within. As one stands there and looks out on the great and the wide sea, and watches the snowy sails in the distance, and the little dim specks which dot the circular horizon, a thousand associated thoughts come gliding through the mind, of husbands, fathers, brothers, lovers, who, full of fond hope and trembling impatience, catch a far-off sight of this friendly home-beacon, as, after a globe-encircling voyage, they come scudding up, full sail, towards the shores of England, from the watery plains of the vast Atlantic—some to realize their dearest wishes, and not a few to feel that paralyzing disappointment under which the heart shudders, sinks, and dies. Two men keep ward and watch here, relieving each other in their tasks every twenty-four hours. Judging from the exquisite neatness of the whole place, we should think the lighthouse keepers have no need to fear at any time the visits of the Admiralty officers, who, we are informed, come, unexpectedly and often, to examine into the condition of the establishment which is supported at their cost.

As we looked over the building, it appeared to us all very well to spend some summer weeks there, with calm blue skies overhead, and calm green sea around, and boats with visitors every now and then approaching the landing-place; but surely it must be a terrible thing to be "cribbed, cabined, and confined" within these narrow circular walls through long winter months of rough and dreary days and of black tempestuous nights, when breakers, like waterspouts, come flushing over the very lantern-top. But it is nothing like so bad as Eddystone, where, often for weeks and weeks in the winter, no boat can get near the rock; and the three poor fellows who have charge of it are, in their dreary solitude, exposed to many a dire casualty. Formerly there were only two there, and then, once, death entered the lighthouse, and the survivor, for a whole month, kept the putrid body till the air of the place was poisoned; fearing to cast out the corpse into the sea, lest he should be accused of murder.

But with all this, men are willing to occupy such posts, nay, they become attached to them, and are loth to leave their rock-built nests. Habit inures them to solitude, till society alarms them; as the

poor prisoner in the Bastille became so accustomed to his dungeon, that, when released, after a little taste of freedom so strange in a world that seemed another to him than it had been, he prayed to be restored to his old solitude. One of the Eddystone men, many years ago, at the end of fourteen years' service, going on shore to take his month's vacation, which for two or three summers he had declined, was so wretched that he gave himself up to intoxication, went back, and died. A love for this kind of life engendered by habit is not, however, so odd as a taste for it beforehand. A shoemaker was engaged to become a light-keeper. "How happens it," said the skipper to him, as he leapt eagerly into the boat that was to bear him to his future home—"how happens it, Jacob, that you should choose to be cooped up here as a light-keeper, when you can on shore earn half-a-crown and three shillings a-day in making boots and shoes? whereas the light-keeper's pay is but twenty-five pounds a-year, which is scarce ten shillings a-week." "Every man to his taste," replied Jacob; "I go to be a light-keeper because I don't like *confinement*."

Bidding farewell to the keeper of the breakwater lighthouse, and wishing him bright summers, and calm winters, and God's blessing, we returned to shore. And as this noble defence of such of the world's shipping as may happen to sail in, spreads out before us, gradually becoming reduced to a dark line again, as we left it behind, how natural was the aspiration, that Christian principle might be in every breast to the temptations of the evil one, that faith throughout the whole church of Christ might be to the world's assaults, and that constitutional liberty might be to every invasion of tyranny, what the Plymouth breakwater is to the storms of the Atlantic.

WILLIAM COBBETT AT HOME.

IN Miss Mitford's interesting "Notes of a Literary Life," recently published, we are presented with a sketch of this well-known writer, as he appeared in his palmy days, when wealth and literary fame were showered in equal abundance upon him. Few could have anticipated that the rough demagogue, who so unscrupulously used his pen, trampling down the sweet courtesies of life, and lacerating without mercy the feelings of his opponents, could thus, in the private circle, have laid down his club, and divested himself of his bear's skin. The sketch refers to Cobbett as he was about the year 1810. A year or two afterwards his prosperity was dissipated, and he was a refugee from his creditors in America.

This host of ours was a very celebrated person—no other than William Cobbett. He had at that time a large house at Botley, with a lawn and garden sweeping down to the Bursledon river, which divided his (Mr. Cobbett's) territories from the beautiful grounds of the old friend where we had been originally staying, the great squire of the place. His own house, large, high, massive, red, and square, and perched on a considerable eminence,

always struck me as being not unlike its proprietor. It was filled at that time almost to overflowing. Lord Cochrane was there, then in the very height of his warlike fame, and as unlike the common notion of a warrior as could be. A gentle, quiet, mild, young man, was this burner of French fleets and cutter-out of Spanish vessels, as one should see in a summer day. He lay about under the trees, reading Selden on "the Dominion of the Seas," and letting the children (and children always know with whom they may take liberties) play all sorts of tricks with him at their pleasure. His ship's surgeon was also a visitor, and a young midshipman, and sometimes an elderly lieutenant, and a Newfoundland dog; fine sailor-like creatures all. Then there was a very learned clergyman, a great friend of Mr. Gifford of the "Quarterly," with his wife and daughter, exceedingly clever persons. Two literary gentlemen from London and ourselves completed the actual party; but there was a large fluctuating series of guests for the hour, or guests for the day, of almost all ranks and descriptions, from the earl and his countess to the farmer and his dame. The house had room for all, and the hearts of the owners would have had room for three times the number.

I never saw hospitality more genuine, more simple, or more thoroughly successful in the great end of hospitality, the putting everybody completely at ease. There was not the slightest attempt at finery, or display, or gentility. They called it a farm-house, and everything was in accordance with the largest idea of a great English yeoman of the old time. Everything was excellent—everything abundant—all served with the greatest nicety by trim waiting damsels; and everything went on with such quiet regularity, that of the large circle of guests not one could find himself in the way. I need not say a word more in praise of the good wife, very lately dead, to whom this admirable order was mainly due. She was a sweet, motherly woman.

At this time William Cobbett was at the height of his political reputation; but of politics we heard little, and should, I think, have heard nothing, but for an occasional red-hot patriot, who would introduce the subject, which our host would fain put aside, and get rid of as speedily as possible. There was something of Dandie Dinmont about him, with his unfailing good humour and good spirits, his heartiness, his love of field sports, and his liking for a foray. He was a tall, stout man, fair, and sunburnt, with a bright smile, and an air compounded of the soldier and the farmer, to which his habit of wearing a red waistcoat contributed not a little. He was, I think, the most athletic and vigorous person that I have ever known. Nothing could tire him. At home, in the morning, he would begin his active day by mowing his own lawn, beating his gardener, Robinson, the best mower, except himself, in the parish, at that fatiguing work.

For early rising, indeed, he had an absolute passion, and some of the poetry that we trace in his writings, whenever he speaks of scenery or of rural objects, broke out in his method of training his children into his own matutinal habits. The boy who was first down-stairs, was called the lark for the day, and had the pretty privilege of making his mother's nosegay, and that of any lady visitors.

Nor was this the only trace of poetical feeling that he displayed. Whenever he described a place, were it only to say where such a covey lay, or such a hare was found sitting, you could see it, so graphic, so vivid, so true was the picture. He showed the same taste in the purchase of his beautiful farm at Botley, Fairthorn, even in the pretty name. To be sure he did not give the name; but I always thought that it unconsciously influenced his choice in the purchase. The beauty of the situation certainly did. The fields lay along the Bersledon river, and might have been shown to a foreigner as a specimen of the richest English scenery. In the cultivation of his garden, too, he displayed the same taste. Few persons excelled him in the management of vegetables, fruit, and flowers. His green Indian corn, his Carolina beans, his water-melons, could hardly have been exceeded at New York. His wall-fruit was equally splendid; and much as flowers have been studied since that day, I never saw a more glowing or a more fragrant autumn garden than that at Botley, with its pyramids of hollyhocks, and its masses of china-asters, of cloves, of mignonette, and of variegated geranium. The chances of life soon parted us, as, without grave faults on either side, people do lose sight of one another; but I shall always look back with pleasure and regret to that visit.

SANITARY SKETCHES.

If we were to read in the morning papers that, in a village of two thousand inhabitants, twenty persons had been killed by the fall of a bridge, long known to be insecure by the magistrates, and had been all drowned in the deep pools of a stagnant stream, every one would be shocked at the catastrophe, would condemn the apathy of the public authorities, and perhaps raise a subscription for the bereaved families. If, instead of draining the stagnant pools, and erecting a secure viaduct, an insufficient bridge were, from motives of sordid economy, to be erected, and in the course of twelve months the same "accident" were to recur, and twenty persons once more to perish, the nation would be indignant, the magistrates would probably be struck off the commission of the peace, and the village would become a by-word for improvident folly. The day on which, in two successive years, the twenty faces, all familiar to the little community, had been laid, with pale and convulsed features, on the grass, amid the shrieks of surviving relatives, would, under the name of "Black Monday or Wednesday," be long recalled with a shudder of horror, and strangers who might visit the village would be conducted to the churchyard to gaze on these forty graves, as on some spectacle of wonder and awe. If, still, from some inherent defect, the bridge annually fell, and twenty persons were annually swept away, the inhabitants would abandon the place as one under the especial curse of God, and the village would be no more dwelt in for ever.

Yet in almost every village of two thousand inhabitants throughout Great Britain, twenty individuals perish annually from a want as easily supplied as that of a good bridge. They do not drop

all at once into the dark waters; their faces, with the death-struggle convulsion on them, are not seen side by side, and their graves are scattered over all the village churchyard instead of being gathered up in dreary files in one part of it; but every twelvemonths as surely sees the sufferings and the graves, as if the victims had all perished in one sudden catastrophe, and had been followed to the churchyard by the whole of the peasantry, struck dumb with awe.

The numerous reports on public health, both by sanitary commissioners, and the large number of intelligent persons who, during the last ten or twelve years, have devoted their time to the subject, in various parts of this country, have at length issued in a "Summary of Experience on Disease," drawn up by William Lee, Esq., Superintending Inspector under the Public Health Act—a most important document, wherein is made manifest, by statistics unanswerable, that most villages of two thousand persons, and every two thousand persons in most towns, do really stand by and see twenty of their neighbours killed, who by proper exertions on their parts might be saved. If the method of this annual mortality were proved to be as infallible as drowning, and as easily remedied as building a stone bridge, there can be little doubt that every one, from the architect to the hodman of society, would come freely forward, and have the bridge finished off in the shortest possible space of time. By way of proving this to that portion of the public who choose to spend a leisure hour with us, we mean to say a few words on this most valuable "Summary of Experience on Disease," by Mr. Lee, and to offer a few suggestions which have occurred to us during its perusal.

Generally speaking, the mortality of towns is greater than that of the country, but not to the extent usually supposed, nor by any means inevitably so; for in the good parts of well-paved and drained towns the mortality is as low as in the most salubrious village. In the dirty undrained alleys and courts of small country towns and villages; nay, in isolated farm-houses and cottages where the family dwell on the floor, and have dunghills and other refuse decomposing around them; the mortality per cent. is, in our experience, quite as great as in the back streets of manufacturing towns; in some manufacturing and agricultural villages which we know of, even greater. For if the country people have fewer vicious habits, less absolute want, and more open air during the day, they have the floor below the surface of the soil, and the damp walls, which the town artisan usually escapes; while they frequently lack the good and ready medical advice which the hospital and the dispensary supply.

This similarity in the *great* mortality of the dirty undrained portions of both town and country dwellings, and the similarity in the *small* mortality of the clean dry parts of good country villages, and the clean well-drained portions of large towns, has not yet been sufficiently attended to, and is a circumstance of great practical importance. For the fact fixes the causes of death (in excess of the average) on the want of ventilation and cleanliness common to both places, in town and country; and shows that not all the wholesome influence of the free country air can much lessen, nor all the

depressing influences of town life much increase, the mortality allotted to man, provided his personal habits and the vicinity of his dwelling be in accordance with the common laws of health.

In towns, typhus and other fevers, and drink, are the chief parents of pauperism; in the country it is the same—rheumatism, small-pox, scarlet fever, and, in a few places yet, ague, adding to the miserable brood. The parents of typhus and very many of the other infectious and endemic fevers issuing in pauperism are, even in country villages and farm-houses, bad air, and filth in a decomposing state. We have known fever and small-pox spread as rapidly and virulently in a village as in the back streets of a large town; and, near dirty farm-yards, have known fatal typhus linger though the freshest of mountain breezes were playing around, and streams like crystal were flowing near.

We said, that if the causes of this excessive mortality were as manifest to the public as the breaking down of a rickety bridge, they would at once remedy the mischief. When these causes shall become visible, palpable to all, as they now are to many, the *laissez-faire*, or let-alone, philosophy of ignorance, and the fatalism philosophy of laziness and folly, will be abandoned. Gradually the knowledge of the preventible nature of very much of this mortality is becoming diffused amongst the people; and in proportion as this knowledge shall become general, the better philosophy of forethought, founded on experience, will become the law of the public mind on the subject of the public health. But it will not be till the majority of the people—or, rather, of the thinking portion of them, (a small but influential minority indeed)—shall come to see the merits of this question, that its solution will become easy.

At present, so far as we are advanced in the inquiry, the chief question with the public is, as it has long been the question with medical men and other intelligent sanitary reformers, is it lawful for any man, under any pretence, to oppose public cleanliness and abundance of fresh air and water? Should any one, anywhere, be allowed to cherish and harbour miasm and fomites, those invisible Thugs of society? If a man may not harbour a pig in his garret, is he to harbour a confluent small-pox? If he may not have a drunken fight in his cellar, is he to be allowed to have a putrid or delirious fever up-stairs? We think, as society can punish, by very summary methods, the sale of diseased flesh in the shambles, it ought also to arrest the distribution of a deadly atmosphere; that it is quite as great and as easily preventible a crime to scatter the infection of typhus as sulphuric acid; and that no man should be permitted to have an open sewer any more than a savage bull-dog going at large. The sooner the thinking portion of the public, and especially the thinking portion of the working classes, examine these questions, the nearer will the remedy be; for their discussion can lead to no other result than that a deep and solemn religious duty lies before them in regard to the public health.

Out of a number of districts embracing a population of 600,000 persons inhabiting country towns, villages, hamlets, and isolated houses, Mr. Lee found the average annual mortality to be scarcely more than eleven to a thousand. These were the

most healthy populations in England. But as there can be no doubt that many deaths, from preventible causes, occurred in these country districts, he concludes, we think justly, that the average mortality of England, under favourable circumstances of ventilation and drainage, should not be more than ten in a thousand. Yet in many towns and villages the mortality is twice, even sometimes three times, as great as this; and it is a melancholy fact, that in very large sections of the population the number of deaths from DIET is as great as those from inevitable causes. In a small beautifully situated country town, within a mile of the place where we write, the deaths have averaged, for many years past, twenty-two in the thousand; yet, with a little exertion, it might become one of the cleanest, neatest, and healthiest, as it is one of the most beautifully situated, little towns in the whole of the country. Typhus, small-pox, measles, scarlet fever, and cholera, have their tales of death and sorrow to tell in this lovely land, amid gushing streams and mountain breezes, as well as in St. Giles' and Wapping; and the worn look and wasted spirits resulting from foul air, and the use of the stimulants to which the depression it produces tempts, are as visible here as in the Cowgate of Edinburgh. And many are the fair villages and towns throughout England which, with equal advantages of situation, have similar tales of sorrow to tell.

When we hear of 70,000 persons perishing annually in Great Britain from consumption, we listen with pity and awe, and call it "the English disease," as if that peculiarly were our foe. But what is that compared to the mortality from typhus and its kindred diseases? In every million of inhabitants, probably less, we lose as many every year as consumption takes away from the whole population; and the misery which results from the preventible disease is many times greater, in proportion to the numbers carried off, than in this "incurable" disease of the chest. Typhus strikes the father and mother, and leaves the helpless family behind; or it undermines the constitutions of the poor, leaves them unfitted for toil, and an easy prey to future maladies, while consumption takes chiefly the young, gives them leisure to prepare for the solemn change, and does not so often leave pauperism behind it.

We have been astonished throughout life to find how large a portion of really worthy and even sensible people, look upon disease, and especially the great pestilences which sweep over society, as being inevitable and irremediable as death itself, and think it presumptuous, nay, impious, to strive for the extinction of these scourges of our race. The enlightenment of the Tweed-side farmer, who, having always been accustomed to winnow his corn in a suitable wind, and wait for that patiently, considered the winnowing machine as a mere blasphemous invention for raising the wind, has been often paralleled during the last half-century; and it is only the other day that a learned professor of the Edinburgh University had to publish various pamphlets, well fortified by Greek and Hebrew, to defend the use of chloroform in relieving agony, from the popular outcry which was raised against it, as impiously annulling the primeval curse upon all the daughters of Eve.

We trust, however, there are few of our readers who thus survey the boundless goodness of God through the tunnel of prejudice, and see no beam but that which reaches their own dim optics in the dark passage along which they grope. Certainly there will be none among those who shall well employ their "leisure hours."

Many eminent medical men believe that typhus fever and its kindred contagious maladies do not necessarily exist on the earth, any more than ague or drunkenness. The evidence of very many of the witnesses quoted by Mr. Lee, who had practised largely among the poor, goes to establish the belief. Those who have not had the observation forced on them by a large experience of typhus, will, perhaps, doubt the truth of it; but, startling as it may seem to say that half a million of deaths annually in Great Britain might be prevented, a close examination of the medical statistics given in Mr. Lee's tables, will show that the estimate is, in all probability, correct. Other diseases have been driven from the country, when their causes were discovered—plague, for example, and ague, and there seems no reason why typhoid fevers should form any exception. Fifty years ago, no farm servant or other stranger came to reside within some miles of the place wherein these remarks are written, without suffering from ague:—"Every body," say the country people, "had to go through a six weeks' shake." The last woman who suffered from it is now sixty years of age, and there has not been a case of true indigenous ague known for a quarter of a century or more.

In the old wards of the Edinburgh Infirmary, at the close of the last century, physicians and nurses were continually taking small-pox from the patients; but on the establishment of new well-ventilated wards, these cases among the attendants entirely disappeared. Drainage has driven the ague from this district, and ventilation saved the lives of the officers and nurses of the Edinburgh Infirmary. Innumerable instances have been recorded of late years, wherein an open sewer, or cesspool, or ditch, which for a long series of years had generated infectious disease, had, on being closed, ceased to produce any noxious effects. It has, indeed, become quite impossible for any one who will spend a few hours in examining into the evidence, to resist the conviction that typhus fever, and its kindred diseases, are as much the consequence of filth, as ague is of marsh miasma, or intoxication of deep drinking. It will, no doubt, be more difficult to apply the remedy to a town or village, than to a marsh with a ready outlet; but the method of cure is as clear in the one case as in the other, and all the obstacles will disappear by degrees when this truth is generally acknowledged.

How strange that truths so evident and simple should lie so long wrapped up in mystery, and that we should only now be arriving at the perception of them! The Almighty Disposer has said to all, in accents ever audible and clear: "This refuse of life, if you place it in the soil, shall cover the earth with verdure, beauty, and abundance; if you allow it to remain about your dwellings, it shall generate pain, disease, and death;" and we are only now beginning to listen to, believe, and obey the eternal law.

A CHEAP NATIONAL DEFENCE.

In the memorable lamentation of Edmund Burke over the decline of the chivalric spirit, which he mourned over as a thing departed, he called the spirit of honour residing in the breasts of the *few*, a "cheap defence of nations;" but we think the spirit of religion, dwelling in the hearts of the *many*, a still cheaper national defence.

This sentiment is strongly brought out in the following sentences, written by an eminent French statesman who conspicuously figured during the most recent political changes in France:—"Those of our countrymen who visit the great English metropolis, are astonished to find that the two millions of people therein are kept in perfect order by an unarmed police, backed, on very rare occasions of need, by a battalion or two of infantry, and as many squadrons of horse only; whereas our capital needs, it seems, a large army to keep scarcely half as many people in order. Our travellers are surprised at this difference; but their wonder ceases when they contemplate a sabbath day in London. They then see nearly the whole people of the gigantic English metropolis, divested of worldly cares, dressed, and in the streets, not pressing on to places of amusement, or of sensual excitement, but all repairing, soberly, to their several places of worship. What a contrast between the London of the working days, and London of the seventh [first] day of the week! On the latter, the mighty heart seems as if for ever stilled of the erewhile busiest seat of trade and industry which this world contains. Go to the Exchange, the Bank, the Post-office, the docks, and you find every door closed, and unbroken stillness reigning within. Without, the repose is made sacred rather than broken by the sounds of church bells, calling the people to prayer. Having observantly noted, and maturely reflected on all this, our travellers no longer wonder why London is so easily kept in order; for God, whose specially ordained law is here so reverently obeyed—the *Divinity itself*, if I may so speak—keeps watch and ward over the city, so that its people shall come to no harm." So wrote the Comte de Montalembert in 1845.

Scarcely less eloquent, and not less earnest, in speaking of an American sabbath, is the Count's fellow-countryman, M. de Tocqueville:—"An Anglo-American city or town, in the eastern and middle States of the Union, upon the Christian sabbath day, presents a singular spectacle to the eye of a Frenchman, when he first arrives. He finds every place of business, great and small, religiously closed. At intervals, the streets are filled with crowds of people; at others, they are all but utterly deserted. The out-door people are all well dressed, but of staid demeanour; and pass regularly, at stated times, to their several churches and meeting-houses. If you visit an American at his house, you find him not secluded (as too many of our traders are on Sundays) in his *bureau*, examining his ledgers, or casting up his accounts, balancing the profits and losses of the past week; you will see him, rather, engaged in family devotion, or turning over the leaves of the Bible; that sacred book, which speaks to man more of the concerns of his immortal soul than of the poor

needs of his perishing body. The whole population, in a word, abstracts itself, for a season, from the harassing cares of secular life; which, without such an interval, would make a selfish individualism deprave the whole heart of the community. The Christian sabbath, like the religion of which it is a part, by its operation in bringing men closely together in one common service of devotion, binds society more firmly through the tie of religious sentiment—that great cement of man's social relations, whether of the family, the city, or the state."

Another French writer, the Chevalier de Tapiès, in treating of the importance of sabbath observances to a Christian country, and deploring the disregard of them in France, gives the following anecdote:—"When the French army of Africa was carrying on its first operations against Abd-el-Kader, the latter was for a time very successful, and took many prisoners. One day (probably a Friday, the Mussulman sabbath), scandalized at the irreligion of his captives, he said to some of them, 'How can you wonder that we call you Franks *dogs*?—what better are you than those unclean animals? Here have you been with us for six months, and not one of you has been known to breathe a prayer, or to show a sign, in any way, that ye have a God to be worshipped.'"

There are two great nations who chiefly obey the law of the sabbath—our own, and that sprung from our loins, the Protestant States of America. Can we doubt, if a condition of superior material prosperity, no less than the continuance of a purer system of Christian morals, be signs of divine approbation, that God most favours the people who pay the greatest respect to one of his most especial ordinances? The thrift, material and moral, of the Anglo-Saxon race, wherever located, would seem tacitly to decide the cause in favour of the observers of the Christian sabbath. That blessed institution, in fact, serves us, whatever it may be to other peoples, as the only remaining dyke to keep out the waters of practical heathenism, ever ready to engulf our over-commercial nation.

SCIENCE IN HUMBLE LIFE.

How pleasant it is to reflect that our beneficent Creator has made the noblest enjoyments accessible to all men. Wealth is required to maintain a splendid equipage, or indulge in luxurious living, but wealth is not requisite to make us really noble and happy. It is true, money is necessary to purchase books, and to feast our sight with the natural curiosities of other climes. Comparatively few can afford to keep a well-stocked library, and still fewer to stand beneath the shadow of the mighty Alps, or listen to the never-ending roar of Niagara. But we should remember, that wisdom and knowledge are not the same; that intellect is higher than mere information; that a multitude of books may dissipate, as well as improve, the mind; and that many who have been distinguished for literary or scientific attainments, trace their eminence to the fact that poverty confined them at the outset of their career to a single volume. For every pleasure which appeals to the senses we have a substitute in our imagination. By the aid of

this faculty we can surround ourselves with forests and mountains; or, if we prefer it, with enchanted gardens, filled with fairer flowers, and perfumed with sweeter odours, than ever enriched the loveliest scenery of a *real* world. But science is nobler than mere sensibility; and as much enjoyment may be derived from examining the structure of a plant, or the physiology of an insect, as from contemplating the gloomy grandeur of a Swiss landscape, or floating amidst the beauties of the sunny Rhine.

One of the most interesting illustrations of the pure enjoyments which a love of science can bestow upon any station of life, is furnished by the botanical societies which have long existed among the operatives of Lancashire. For nearly a century past a taste for botanical studies, amounting to enthusiasm, has been cultivated among a number of men who have generally earned a livelihood by working at the loom; devoting every spare hour to their favourite pursuit. Without any encouragement from the learned world, without any desire to assume the character and reputation of *savans*, without any idea of pecuniary gain, and almost in the absence of books, they have prosecuted their botanical researches with such energy and scientific skill as to have risen, in several instances, to positions of considerable eminence.

The person whose example seems to have been the means of originating this taste for the cultivation of botanical science, was John Mellon. He was born at Royton, in 1767, and died recently in his eighty-second year. His original occupation was that of a hand-loom weaver, in which he continued till he was thirty years of age. He then turned to the more congenial profession of a gardener, in which he remained till death. For thirty years he made an annual excursion into the adjoining counties, and traversed the highlands of Scotland six times. With such a leader, it is not wonderful that his associates should be inspired with kindred enthusiasm. Several associations sprang up, through his influence, in the neighbourhood of Manchester. The members of these associations generally met once a month, subscribing a small sum for the purchase of books. At these monthly meetings fresh specimens of plants were produced, and classified according to the Linnæan method; and the scientific attainments which were brought into requisition on these occasions may be inferred from the fact, that, during a course of years, not a single plant was taken away unnamed, unless it were an exotic or an imperfect specimen.

In the year 1820, a botanical society was formed at Prestwich, about five miles from Manchester, which is still in existence, its president and other officers being all working men. The thirty-first anniversary of this institution was held in September last, three of its original members being present, one of whom has acted from its commencement in the double character of president and secretary, without having been absent from the monthly meeting more than eight or ten times during the whole of the one-and-thirty years. It appears that about one hundred persons have at one time or other belonged to it, whose joint subscriptions up to the present year amount to rather more than 136*l.*; no donation ever having been received from any quarter. The process of book-buying is not the least interesting in which the

society has engaged. In 1824, they ventured to commence the purchase of "Smith and Sowerby's English Botany;" and year after year did the purchase proceed, till, at length, it was completed in 1849, at an outlay of 51*l.* 14*s.* 9*d.* That work consists of 36 volumes, all of which are on their shelves, but still there is the supplement, which would cost ten or eleven pounds more, and the possession of this is an El Dorado which they know not whether they will live to see. Would it be a censurable act of kindness if some munificent patron of science were to claim the privilege of helping them to realize their disinterested desire?

The various societies which sprang from this common origin have always been on terms of friendly intercourse with each other. Once every year a general meeting has been held in Manchester, at which past results have been canvassed, future plans arranged, and their zeal reanimated by a visit to the Botanical Gardens, or the Museum. All the hills and valleys for miles round Manchester have been brought under their scientific sway. Not a nook in the elevated districts of Saddleworth, Greenfield, Ashworth Wood, Rochdale, and Staleybridge, has been left unexplored. Carrying into their amusements the daring and hardihood which distinguish the operatives of manufacturing towns, they have climbed trees, crept along the face of precipitous rocks and the shelving banks of rivers, thinking no toil misspent which might enable them to surprise their brethren by producing a hitherto undiscovered specimen. It may readily be imagined what enigmas they appeared to their less intelligent neighbours. John Horsefield, of Besses-o'-th'-Barn, near Bury, president of the society already mentioned, says, "I have often been an object of scrutiny to persons who might happen to find me in the lonely solitudes I have so often selected for the accomplishment of my purpose. Almost invariably the first question put to me in such circumstances is, 'What are you gettin'?' and if I show the inquirer what I am collecting, then comes the almost unanswerable demand, 'What is it good for?' In the summer of 1826 I was engaged in gathering mosses at the lower end of Bamford wood, near Heywood; I was, selecting specimens of *Hypnum commutatum*, and was alone. My hat lay on the grass near my feet, and a book lay open beside it to receive the mosses as I detached them from the rock. As I was thus engaged, a man happened to come up the almost dry rocky bed of the brook. It was a very warm day, and he was without his coat and jacket. When he came opposite to the place where I was, he stood stock still, staring, but said nothing. At last I said, 'Aw reckon yo' wonder'n what awm doo'in?' 'Eh dear!' he exclaimed, shaking his head, and walking on, 'Awve bin in that way myself:' but what way he thought I was in he left me to conjecture, for he did not explain."

One of the most distinguished of the "Manchester botanists" was George Cayley. He was born at Middleton, and was trained to the business of a horse-dealer. From his boyhood he manifested a taste for botanical studies, and men of eminent scientific attainments availed themselves of his information. In 1800 he went to New South Wales, under the auspices of Sir Joseph Banks, who maintained him there ten years. On his return, he

brought home a fine collection of plants, birds, and quadrupeds, which he sold to the Linnean Society. He was soon after sent out by government to superintend the botanic garden of St. Vincent's in the West Indies, where he continued eleven years. His last days were spent at Bayswater, where he died in 1829, aged 59. His name will be perpetuated in the annals of botanical science by the designation *Caleyana*, which was given after him to a genus of orchideous plants.

Samuel Gibson was another eminent member of the same fraternity. He was born at Sowerby Bridge, Yorkshire. His father was a whitesmith by trade; an industrious man and a local preacher. Samuel, after spending a short time at a Sunday-school, the only academical institution he ever knew, was apprenticed to his father's trade, and worked as a spindle and fly maker at Hebden Bridge. His spare hours were devoted to botany. "At his death he left a valuable herbarium, containing a collection of the flowering plants, ferns, and their allies of Great Britain, complete to within less than 20 specimens; extensive collections of mosses, lichens, jungermanniæ, and marine algae; about 1000 specimens of British and other seeds, ingeniously mounted between thin plates of glass; and about 140 specimens of British woods and plants, ready for the microscope." He died in 1849, having been obliged to sell a large portion of his collections in order to obtain means of subsistence.

In addition to these, we will only mention the name of Edward Hobson, the author of "Musci Britannici." He was born in Ancoats's-lane, Manchester, and lost his father at three years of age. In consequence of the drunken habits of his mother, he was placed under the care of his uncle, at Ashton-under-Lyne, and attended a day-school till he was ten years of age. He obtained his earliest instruction in botany at the meetings of the Manchester Society of Botanists, of which he ultimately became the president. He was particularly fitted for the study of cryptogamic botany, and devoted himself very early to this difficult branch of the science. In compiling the work by which his name will be perpetuated in literature, he received aid from some of the most eminent botanists of the day, who held him in high esteem. It is recorded of him that he was "a most affectionate husband and father, never suffering his fondness for science to interfere with the duty of providing for the daily wants of his large family."

We close our brief annals by presenting these working men as examples to all who occupy a similar station in life. How humanizing is the tendency of such pursuits! How it softens the character, and elevates it above the temptations of sensual indulgence! Compare the drunken mechanic with Edward Hobson; place by the side of these illustrious operatives, those—alas how many! whose intellect seems crushed and buried beneath heaps of ignorance; who, the very moment their manual toil is over, sink into semi-brutal inactivity, in which the coarser bodily instincts seem all that is left alive. How striking the contrast! But why should there be any? Has not God bestowed substantially the same faculties upon us all? and might they not, by culture, attain to the same facility of ennobling and gratifying their pos-

essor? Nature, devoutly contemplated, leads us into the presence of its infinite Author. Every shrub shows forth his handiwork. There are lessons hid among the humblest grasses of the field, which, if wisely studied, will teach us to set our hopes above the skies.

AN INCIDENT IN A FRENCH PRISON.

TRANSLATED AND ADAPTED FROM THE FRENCH.

IN 1800 I found myself, for political causes, the inhabitant of a French prison. I was very young, and arrested on mere suspicion, but neither youth nor age afforded any safeguard against arrest, and its frequent consequence—the guillotine. The gaoler was an honest man, kind in his way, and disposed to fulfil the harsh duties of his office as tenderly as might be. His wife was in bad health, and generally confined to her room; but she employed as her representative an old woman named Lidivine, or, as the poor prisoners called her, *La Divine*. She was upwards of seventy years old, but as active, lively, and diligent, as if she had been but forty.

I fancy now that I can see her, in her clean white cap and kerchief, her close-fitting black dress, and round her neck a narrow velvet ribbon, once black, but then rusty from long wear. A strong and salutary influence did this meek old woman, with her low quiet voice and soft sweet eyes, exercise over the fiercest and wildest spirits in our prison. Whenever a tumult occurred, the gaoler sent no armed soldiers amongst the insurgent captives; he sent to them “Mother Lidivine,” and in a moment all was calm.

Her grandson, Pierre, acted as one of the turnkeys: he was a gentle, delicate-looking lad, more fitted, as I thought, for a quite village hamlet, than a gaol. His words and actions, like his Master's kingdom, were not of this world.

The cell which I and two others occupied was generally opened in the morning by Pierre. One day the bolts were pushed back, and the lock turned with a violent grating noise, unmindful of our broken sleep, and announcing the visit of the other turnkey, Nicholas. This man was never made for his office, which, however, he tried to fulfil with what he deemed a befitting severity of demeanour. He always spoke in a hoarse growling voice, knitting his eyebrows (which manfully resisted his efforts) into a convulsive sort of frown. As these combined manœuvres, made against the grain, cost him much trouble, he generally turned his back when he wanted to speak with especial roughness. One day he was fairly caught shedding tears over a dying prisoner, who was giving his wife a last embrace; but as he wiped his eyes, he tried to disguise his emotion by opening his snuff-box and snuffing at a great rate. There are many men in the world like Nicholas, who don a rough exterior to conceal a gentle spirit.

“Where is Pierre to-day?” I asked.

“Pierre! Pierre! indeed,” he answered sharply.

“‘Tis always Pierre you ask for. One would think no one else could serve your turn. What does he do for you that I can't do? Does he bring you anything but a loaf of bread and a pitcher of water? Here's the loaf and here's the pitcher. If

you want Pierre, you must go look for him—he's in the dungeon.”

“Pierre in the dungeon!” I exclaimed. “Impossible! What has he done?”

“How should I know what he has done? What business is it of mine? Mayhap 'twas a door opened too soon, or a door shut too late; a letter conveyed to a prisoner without having been read by the authorities. Some foolish piece of kindness towards one of ye. He's quite capable of doing it—the young simpleton.”

While speaking, Nicholas kept his back perseveringly turned towards us.

“‘Tis dreadful—infamous!” I exclaimed, “such an unlawful abuse of power. The dungeon is a heavy punishment; how can it be inflicted on a free man without the authority of the law?”

This time Nicholas looked at me fixedly. “And do you really think,” he said, “that your friend Pierre is a man like me, free to ask for his wages and walk out of the house? I tell you he is a prisoner, like yourself; with this difference, that you may be tried, acquitted, and set free to-morrow by the gentlemen above, while Pierre has still thirteen years to spend in prison. He was too young to be guillotined when they sent him here, seven years ago.”

He abruptly quitted the cell, before I could question him, as I longed to do, on the history of Lidivine and Pierre.

On the next day, according to the prognostic of Nicholas, I was tried and acquitted. One of the first uses which I made of my liberty was to inquire into the story of my two friends.

They had lived all their lives, I was told, in a cottage in a country hamlet. There, in 1793, a minister of religion took refuge, and brought the comforts of the gospel to the poor people amongst whom he sojourned. The agents of the revolutionary tyrants surprised him one day while officiating for a little flock of fifteen souls. Like a martyr of old, he was led to the scaffold, where thirteen of the villagers also perished, after having received his last benediction. Lidivine and her grandson alone were spared, and sent to prison for twenty years. The gaoler and his wife, perceiving their honest kindness of character, soon began to employ them as assistants, and thus the rigour of their fate was lightened. Now better times had come.

Aided by the influence of some friends, I used all possible exertions to obtain a remission of their sentence, and in time, after much trouble, succeeded. As soon as I received the order for their liberation, I flew with it to the prison.

It was four o'clock on a beautiful spring afternoon, and the prisoners were enjoying (even in prison there is something to enjoy) their recreation in the open court. I ran towards Lidivine and Pierre, and grasped their hands in turn. “You are free!” I exclaimed.

At first they scarcely understood me; but the next moment their fellow captives, crowding round with tears and embraces, explained my words. Then there was a pause—a grave, sad silence. Lidivine looked at the women, the sick in mind and the sick in body, whose nurse and teacher she had been, and of whom many had been brought back by her to the paths of religion and virtue.

She turned towards a decrepit old man, who stood next the wall, leaning feebly on his stick—

"George!" she said, "who will make broth for you when I am gone?"

Then turning to me, and pressing my hand between both hers, she said, "Am I really free?"

"Yes, Lidivine."

"And I may go with you to visit the kind advocate who often pleads the cause of my prisoners?"

"Certainly."

"And you will take me to the house of our sick people's physician?"

"Yes, Lidivine; and to the church which is about to be re-opened. For now we are once more under a government which will allow us liberty to worship God according to our conscience."

"Thanks to his holy name! If I were sure of not being an incumbrance in the prison—" The gaoler's wife threw her arms around the old woman, and embraced her. "Then you will not send me away?" continued Lidivine, smiling, and wiping her eyes with the back of her hand.

"Come, friends," she said to the prisoners, "the bell has rung, 'tis time to go in; we shall meet again to-morrow. I am not going away. Where indeed," added she, "could I be more useful or more happy? I have no home in the world, no family, no friends. It is different with Pierre; he is young, industrious, patient, and, above all, pious. If the nation has turned once more to what is right, Pierre will prosper in it. Come to me, my child, that I may give thee my blessing before thou goest forth!"

Pierre had not yet spoken; he seemed plunged in a deep reverie. When his grandmother thus called him, he approached her, and said: "I must not go, my mother, and leave thee here. I lack both time and talent to acquire learning for a profession. My strength is too weak to engage in an active trade. Besides, have I not duties to fulfil here? Nicholas wants an assistant, and he knows that I never allow my compassion to interfere with the honest discharge of my office. I pray you, mother, do not ask me to go forth! A blessing will rest upon me while I remain here and minister to your wants, besides soothing also the sorrows of others."

Nicholas took his hand, squeezed it with an iron gripe, and said in his harshest voice: "Do then stay with us!" I looked at the old turnkey's eyes as he spoke; gruff as was his tone, you might have thought, judging from the water that flowed from them, that the whole contents of his snuff-box had flown into them.

I afterwards learned that Lidivine survived her young companion, Pierre. Both, I was told, finished their lives in the service of the prisoners, soothing many a child of sorrow, and binding up many a broken heart.

THE CINNAMON ISLAND.

THE cinnamon tree is a species of laurel, growing from twenty to thirty feet in height, and having a trunk about the size of an ordinary man's body, from which issue a great number of large horizontal branches, thickly covered with foliage. The

leaves are oval in form, from four to six inches long, and about three broad, with a plain edge and a smooth surface. Amidst these the blossoms appear, in numerous clusters of small white flowers, much resembling our lilac. The fruit is in the form of our acorn, and in taste resembles that of a juniper berry. Taken from its socket, it has the shape of an olive, and dries into a thin shell, with an oval kernel, not larger than an apple-seed. If boiled in water, it yields an oil, which floats on the top, and is used for burning in lamps. On congealing, it becomes a solid wax-like substance, which is formed into candles. Such is the most profitable vegetable product of the island of Cinnamon—as we may fairly term Ceylon—which, with the exception of Cochin China, is the only place in which the cinnamon grows.

It does not, however, flourish over the whole island. As it delights in a poor sandy soil, with a moist atmosphere, it is almost exclusively confined to the south-eastern part of it. In the northern districts, where the climate is dry and sultry, it is totally unknown; and all efforts to propagate it at Batavia, in the Antilles, and on the coast of Timnevelly, a district of British India, have signally failed.

The trees planted for the purpose of obtaining cinnamon shoot out a great number of branches apparently from the same root, and are not allowed to rise more than ten feet high. They blossom in January, when the appearance of the plantation is exceedingly beautiful; in April the fruit is ripe; May and June are considered the best months for the process of peeling off the bark, and these form the great cinnamon harvest. "The little harvest," as it is called, is passed through in the months of November and December.

This gathering of valuable produce is preceded by an experiment. The peeler strikes his knife, which is, in fact, a small sharp-pointed hook, obliquely into a branch; and if, on drawing it out, the bark divides from the wood, it has reached its maturity; if otherwise, further proceedings are delayed. On a branch being completely cleared of small shoots and leaves, the peeler, seated on the ground, makes two parallel cuts up and down the bark, which, after having been gradually loosened, is stripped off in an entire piece, half the circumference of the branch. The slip is received by a companion, who presses one foot against a piece of wood from which a round stick slopes towards his waist; on this he lays the slip, keeping it steady with his other foot, and holding the handle of the knife in one hand, and its point in the other, he scrapes off the superficial cuticle, which is very thin and white within, but of a brown colour on the outside; this is very carefully done, for if any of the outer bark remains, it gives a bitter taste to the cinnamon. On this operation being completed, the cinnamon is of a pale yellow colour, and about the thickness of parchment; spread on mats to dry in the sun, it curls up, and becomes darker; the smaller pieces are then placed in the larger, and both contracting still closer, appear like solid rods. Tied up into bundles, with pliant canes, they are ready for commercial purposes.

But the cinnamon tree has vegetable companions which its peculiar value must not be suffered to throw into the shade. There is the cocoa-

nut, that flourishes with peculiar vigour, almost every part of it being appropriated to food, or to some other domestic use. The Palmyra palm grows chiefly in the north of the island, and is scarcely less serviceable to the Cingalese. A single leaf of the talipat palm is so broad and large, that it will cover fifteen or twenty men, and keep them dry when it rains; yet when dried it is extremely light, and may be folded close, like a lady's fan. These leaves are used as a defence from the sun's heat; placed on the heads of those who travel, with the peaked end foremost, they aid them in passing through the boughs and thickets; and even furnish them with tents for their repose at night. And then, there is the bread-fruit tree; while coffee, indigo, cotton, the areca, and the betel-nut, are produced of various qualities. The rose, pink, mignonette, and other combinations of beauty and fragrance in our *parterres*, yield in Ceylon as rich a perfume as they do here; the jessamine, in all the simplicity and elegance of its beauty, is far sweeter in odour than it is with us; the amaryllis and the gloriosa superba grow in profusion; and the rose-apple scatters freely on the ground, like a richly-laden hand, its scarlet blossoms.

The hills in the interior are steep, and covered with verdure to their very summits. To the eye unaccustomed to them, they appear to be covered with ruins, from the singular effect produced by parasitical plants, which grow in the wildest luxuriance, flinging their branches from one tree to another, each of which they in turn destroy, till they form themselves into the shapes of arches, bowers, and ruins of all kinds. Several of these formidable creepers have been known to stretch a branch to the distance of a hundred yards, acquiring a girth equal to the size of a man's body, and assuming the appearance of twisted cords; but which was quite unsupported in its progress from the stem of one tree to another. So much do these plants add to the beauty of the scenery, that one easily forgives the destruction they occasion. From the midst of this verdure, large masses of rock are occasionally projected; but description fails to exhibit the wondrous combinations presented in Ceylon, of the beautiful and the picturesque.

The ebony tree, with a tall, black, slender stem, spotted with white; the iron tree, black and hard, as its name denotes; and the thief tree, rising with a straight white stem to a great height, singularly contrasting with the deep verdure around it, and bearing no branches till the very top, where it throws out a few irregular stag-shaped boughs; are frequently to be seen. Much of the furniture in Ceylon is made of ebony, as well as of the calamander tree; but the thief-tree is only good for fuel.

In the vast forests of Ceylon, the animal is found whose strength and sagacity man has often rendered subservient to his purposes:—

"Trampling his path through wood and brake
And canes, which crackling fall before his way,
And tassel-grass, whose silvery feathers play,
O'er topping the young trees,
On comes the elephant, to slake
His thirst, at noon, in yon pellucid springs.
Lo! from his trunk upturned, aloft he flings
The grateful shower; and now

Plucking the broad-leaved bough
Of yonder plume, with waving motion slow
Fanning the languid air,
He waves it to and fro."

This noble animal lives in herds or troops in districts that are remote or secluded, especially where large streams or rivers, flowing through a wide and level tract, are bordered by a luxuriant vegetation. There he finds a quiet home, until man disturbs his repose, and carries on with him, as he has done from the earliest antiquity, a ruthless war.

Several methods of catching elephants are adopted in Ceylon, but the one requiring least preparation and most dexterity is that of noosing them in the open forest. For this purpose, the hunters, having ascertained the position of one, steal up against the wind, carrying strong ropes made of bullocks' hide, with a noose at one end. Approaching close to the elephant's flank, they watch an opportunity, either when he starts off, or attempts to turn round, of slipping the noose under one of his hind feet, at the same time making a turn round a tree with the other end of the rope. Thus checked and tripped, the animal stumbles, and, before he can recover, additional ropes are fixed to his other legs, which are afterwards entangled by cords made from the sugar-palm tree, and twisted from one foot to another in the form of a figure of eight. The captive is then fixed to the nearest tree, and a shed is erected over him until tamed elephants are procured, which escort him to his stable.

Many anecdotes are told of the sagacity of the elephant; but the following is little known. A gentleman who had lived at Ceylon went to the London Zoological gardens, in which was an elephant brought from that island. The animal showed no more attention to this visitor than he did to any others, until he was addressed in the Cingalese tongue; when, immediately, he exhibited the most unequivocal signs of delight, turning his trunk about, and caressing, with all the ardour of which he was capable, his new friend.

In this island, too, are numerous other quadrupeds. Elks, deer, and gazelles are there; monkeys, in great variety, frisk about and gambol amidst the verdant foliage; the porcupine, the racoon, the armadillo, may often be seen, while bears, leopards, hyenas, and jackals are numerous. Equally so are some of the feathered tribes, as peacocks, pheasants, snipes, red-legged partridges, pelicans, and pigeons.

It cannot, however, be said:—

"Come, boldly on! no venom'd snake
Can shelter in so cool a brake,
Child of the sun, he loves to lie
Mid nature's embers, parched and dry,
Where, o'er some tower in ruin laid,
The peepul spreads its haunted shade;
Or round a tomb his scales to wreath,
Fit warder in the gate of Death!"

For often, as the traveller passes onwards, will one species of reptile or another attract his attention. His eye may, perhaps, detect some as slender as whipcord, and of great length, their tints blending in colour with the foliage of the boughs

• Southey.

and twigs of the trees and shrubs around which they twine; or he may perceive them rapidly gliding to the tops of the highest trees, in chase of insects, or in quest of the eggs or young of the feathered tribes. Others dart along the ground, cross his path, and plunge into the jungle, defying the eye, however intent, to detect their colours, while the loud hiss that assails his ear warns him not to follow. If he pursue his way along the mazes of the river, or track the borders of the lake, there may be observed the mighty boa, with its tail twined around a tree or some mouldering log, while its body floats on the surface of the water, in undulating curves; or, partially concealed amidst the aquatic foliage, lurks in ambush till the deer, or antelope, approaching to drink, provides him with his evening meal.

In Ceylon there is an astonishing variety of insects, with which the naturalist is as yet but imperfectly acquainted. The most curious of these are the leaf insects, which assume so exactly the shape, size, and general appearance of the leaves on which they feed, that it is only on examination that their real character is actually ascertained. A very extraordinary insect lives on a thorny plant; its body resembles a stick, and is covered with thorns, like the shrub. After the sun is set, which is here speedily followed by darkness, myriads of fire-flies appear, of the largest size and the greatest brilliancy, and the traveller can scarcely avoid a momentary start as they light upon him, so perfectly do they resemble sparks of fire.

Nor must another material production of this island be passed unnoticed. For, at certain seasons, the pearl oysters are observed floating about on the sea, covering a great extent of surface, and so minute as to appear like the spawn of fish. The currents carry them in this state round the coasts of Ceylon, until, increasing in size, they sink, and form beds, from which a considerable revenue is derived. The best pearl oysters are those taken from the banks of the Arippe, near the Gulf of Manar, and are usually found in from five and a half to seven fathoms of water. The little jewel, which has always held a place second only to the costliest gems, is to be traced to a misappropriation of the matter which is secreted by the animal for the enlargement of its shell, according to the increased size of its own body. On a pearl being cut open, it is seen to consist of successive coatings of pearly matter. Shells consist of a stony substance, and of another, which is glutinous, to bind the harder particles together. If then, this material, floating in the body of the oyster, meets with a particle that has accidentally become stationary, it will adhere to it, form a layer about it, and, as the operation is continued, this particle will, in the course of time, become a pearl. All oysters do not contain pearls, though these gems are found throughout the whole substance of some of these mollusks. Great as is the treasure which they contain, a bushel of pearl oysters may be purchased during the fishing season, off Arippe, at a less sum than a bushel of "natives" costs at Faversham or Colchester.

But the pearl is not the only gem of Ceylon; it has long been celebrated also for its rubies, now becoming scarce, and therefore of greatly increased value, its sapphires, and its amethysts, which are of the most beautiful quality. Rock-crystal in large masses, and of various colours, occurs in

abundance. The finest cat's-eyes in the world, and indeed the only specimens of this singular mineral which produce a high price, are found in this island. This gem is a sunstone, a sub-species of quartz, called in Latin *oculus cati*, or *onyxopalus*, from its white zones or onyx-like rings, and its variable colours like opal. It is very hard and semi-transparent, and from certain points it exhibits a yellowish radiation, bearing some resemblance to a cat's eye. The native topaz, commonly called "the white and water sapphire," is generally white, bluish, or yellow; but commonly much deteriorated by attrition, so that perfect crystals of it are extremely rare. The common garnet is abundant, but its crystals are small and very apt to decompose. The precious garnet is rare, and not of good quality. The cinnamon-stone, so named from its usual colour, and sometimes called the *essonite*, is a rare mineral, of a hyacinth red hue, yellowish brown, or honey yellow; it is occasionally discovered in very large masses, though more frequently in small irregular pieces. The matura diamond, which is prized by the more wealthy nations, is nothing more than a fine crystal. The purple variety of the oriental amethyst is rare, but the green still rarer. The black sapphire is also uncommon, and when procured is generally very small. Ceylon is rich in valuable minerals; ores of iron, lead, tin, and manganese, are found in the interior, but of these little use has hitherto been made.

The extensive green plains give to the shores of Ceylon an advantageous appearance when contrasted with those of the opposite continent, which are barren and sandy. The low country, the hills, and the mountains, form the natural divisions of the interior. The elevations are dotted to the summits, varying from one to four thousand feet, with magnificent forests, and are intersected by numerous ravines, cataracts, and cascades, which, sometimes passing over a rock in a whole mass of water, seem to rise again in a cloud of white vapour.

The most conspicuous summit is that which is known by the name of "Adam's Peak," but called *Samanella* by the Cingalese. It is sharp, like a sugar-loaf, and on the top there is a flat stone, with the print of a foot, like a man's, upon it, but of extraordinary size. The Cingalese consider it meritorious—such is the gross superstition in which they are enveloped—to go and worship this impression; and generally about their new year, which is in March, men, women, and children repair to it as pilgrims. Its narrow apex, which is only twenty-three paces long by eighteen broad, is surrounded by a wall, in which there are two distinct openings to admit the pilgrims, corresponding with the two tracks by which alone the mountain can be ascended. The elevation of this apex is 6800 feet above the level of the sea, the granitic peak or cone resting on a very high mountain belonging to the chain which forms the rampart of the upper country. Nearly in the centre of the inclosed area is a large rock, one side of which is shelving, and can be easily ascended. On the top of this mass, which is of granite, there stands a small square wooden shed, fastened to the rock and to the outer walls by heavy chains, to prevent its being hurled from its narrow base

by the violence of the winds. The roof and posts of this little edifice are adorned with flowers and figures made of party-coloured cloth. The so-called foot-print in the rock is formed in part by the chisel, and in part by elevating its outer border with hard mortar; but all the prominences which mark the spaces between the toes of the foot have been made of lime and sand. The impression is encircled by a border of gilded copper, in which are set a few valueless gems. The books of Buddha state that he stepped from the top of this peak to the kingdom of Siam, and the Buddhists profess to believe that the impression is made by the last foot of Buddha which left Ceylon. The Mussulmans of Hindostan make pilgrimages to the peak, as well as the Cingalese; and the reason *they* assign for doing so is, that the impression is that of Adam's foot, the first parent of the human race;—an impression, be it remembered, which is five feet and a half long, two feet and a half broad, and from one and a half to two inches deep!

At the base of the mountain the river Kalani Ganga takes its rise; it is only surpassed by the Mahavilla Ganga, besides which Ceylon has numerous small rivers and perennial streams. There are also several extensive lagoons, which, by means of artificial channels, are rendered serviceable for traffic. Altogether, this island of impetuous rivers, with its lofty ranges of peaked mountains rising above and beyond them, presents to the eye a series of magnificent views, which have led travellers distinguished by good taste to declare, that Ceylon is one of the most picturesque countries in the world.

THE LAST MESSAGE.

"You are requested to call immediately on Mr. B—, he is dying." Such was the announcement made at a pastor's door, one bright summer morning. The minister obeyed the summons and hastened to the chamber of death. There lay a man in the meridian of life, struggling with the King of Terrors. His last day on earth had come! He felt that he was unprepared to appear before God. The salvation of the soul was now his chief concern. When asked for what the minister should pray, he promptly replied, "Pray that my soul may be saved." Many fervent prayers were offered, for his case was an urgent one. The work of a lifetime was crowded into a few moments. What an awful situation for the dying man. The hope that all would be saved quieted him while in health, but in this trying hour it failed him. He felt that he was a great sinner, that his heart must be renewed and his sins pardoned, or he could not be saved. The world had been his happiness; and the memory of his past life, though unstained with vice, afforded nothing but pain in the dying hour. He possessed many amiable traits of character, much that endeared him to his family and acquaintances, but all his goodness became as a spider's web.

Mercy was his only plea. He sought to be saved by grace through faith. The Lord gave him many hours in which to die. During this time he was constantly pointed to him who pardoned the penitent on the cross, and who can save at the

eleventh hour. Late in the evening, after suffering the agonies of death for twenty hours, the spirit took its flight.

Previous to death, however, in view of his own criminal neglect of the Saviour, he warned most solemnly his companions to attend, without delay, to the interests of the soul. He exhorted others not to do as he had done. "Shall I tell sinners from you," inquired the minister, "not to neglect the salvation of their souls till a dying hour?" "Yes," he replied, moving his arm as he spoke, to give force to his words, "Tell them so! *Tell them so! TELL THEM SO!*" And we would say to all men, that, whatever else is neglected, neglect not the soul till you come on the bed of death. The dying room is a dark, gloomy place, without a Saviour to irradiate it by his peaceful presence.

THE TURN OF LIFE.

BETWEEN the years of forty and sixty, a man who has properly regulated himself may be considered as in the prime of life. His matured strength of constitution renders him almost impervious to the attacks of disease, and experience has given soundness to his judgment. His mind is resolute, firm, and equal; all his functions are in the highest order; he assumes the mastery over business; builds up a competence on the foundation he has formed in early manhood, and passes through a period of life attended by many gratifications. Having gone a year or two past sixty, he arrives at a critical period in the road of existence; the river of death flows before him, and he remains at a stand-still. But athwart this river is a viaduct, called "The Turn of Life," which, if crossed in safety, leads to the valley of "old age," round which the river winds, and then flows beyond without a boat or causeway to effect its passage. The bridge is, however, constructed of fragile materials, and it depends upon how it is trodden whether it bend or break. Gout, apoplexy, and other bad characters, are also in the vicinity to waylay the traveller, and thrust him from the pass; but let him gird up his loins, and provide himself with a fitting staff, and he may trudge on in safety with perfect composure. To quit metaphor, the "Turn of Life" is a turn either into a prolonged walk, or into the grave. The system and powers having reached their utmost expansion, now begin either to close like flowers at sunset, or break down at once. One injudicious stimulant, a single fatal excitement, may force it beyond its strength; whilst a careful supply of props, and the withdrawal of all that tends to force a plant, will sustain it in beauty and in vigour until night has entirely set in.—*The Science of Life by a Physician.*

FIRST USE OF PAPER HANGINGS.—It was on the walls of the king's drawing-room, at Kensington Palace, that the new art of paper-hangings, in imitation of the old velvet flock, was displayed with an effect that soon led to the adoption of so cheap and elegant a manufacture, in preference to the original material from which it was copied.

HUMILITY.—A mock humility is one of the worst forms of pride.

Notes in Natural History.

AGE OF ANIMALS.—A bear rarely exceeds 20 years; a dog lives 20 years; a wolf 20; a fox 14 or 16; lions are long-lived, Pompey lived to the age of 70. The average age of cats is 15 years; a squirrel and hare 7 or 8 years; rabbits 7. Elephants have been known to live to the great age of 400 years. When Alexander the Great had conquered one Porus, king of India, he took a great elephant which had fought very valiantly for the king, named him Ajax, and dedicated him to the sun, and then let him go with this inscription:—"Alexander, the son of Jupiter, hath dedicated Ajax to the Sun." This elephant was found with this inscription 350 years after. Pigs have been known to live to the age of 30 years; the rhinoceros to 20. A horse has been known to live to the age of 62, but averages 25 to 30. Camels sometimes live to the age of 100. Stags are long-lived. Sheep seldom exceed the age of 10. Cows live about 15 years. Cuvier considers it probable that whales sometimes live 1000 years. The dolphin and porpoise attain the age of 30. An eagle died at Vienna at the age of 104 years. Ravens frequently reach the age of 100. Swans have been known to live 300. Mr. Mallerton has the skeleton of a swan that attained the age of 200. Pelicans are long-lived. A tortoise has been known to live to the age of 107.

TRADES OF ANIMALS.—Bees are geometricians; the cells are so constructed as, with the least quantity of material, to have the largest-sized spaces and least possible loss of interstice. The mole is a meteorologist. The bird called the nine-killer is an arithmetician; as also the crow, the wild turkey, and some other birds. The torpedo, the ray, and the electric eel, are electricians. The nautilus is a navigator; he raises and lowers his sails, casts and weighs anchors, and performs other nautical acts. Whole tribes of birds are musicians. The beaver is an architect, builder, and wood-cutter; he cuts down trees, and erects houses and dams. The marmot is a civil engineer, he not only builds houses, but constructs aqueducts and drains to keep them dry. The white ants maintain a regular army of soldiers. Wasps are paper manufacturers. Caterpillars are silk spinners. The squirrel is a ferryman; with a chip or a piece of bark for a boat, and his tail for a sail, he crosses a stream. Dogs, wolves, jackals, and many others, are hunters. The black bear and the heron are fishermen. The ants have regular day-labourers. The monkey is a rope-dancer.

AUSTRALIAN BEES.—Amongst the objects which in this country were quite new to me, were the insects continually buzzing about my tent. Of these a fly as large as a small bee, and of a rich green and gold colour, being a species of *stilbum*, occasionally surprised me with a hum almost as musical as the tones of an Æolian harp. But the habits of the bees there are not the least remarkable, judging from a singular circumstance that occurred respecting my rifle, for I found that a quantity of wax had been deposited in the barrel, and also in the hollow part of the ramrod. I had previously observed one of these bees occasionally enter the barrel of the piece, and now it appeared that wax and honey had been lodged immediately above the charge to the depth of about two inches. The honey was first perceived in the hollow part of the ramrod, and although an empty double-barrelled gun lay beside the rifle, neither wax nor honey was found in either of its tubes. The bee, which I frequently observed about my tent, was as large as the English bee, and had a sting.—*Mitchell's Eastern Australia.*

FOSSIL EGGS.—A singular discovery has been made in Madagascar. Fossil eggs of an enormous size have been found in the bed of a torrent. The shells are an eighth of an inch thick, and the circumference of the egg itself is two feet eight inches lengthwise, and two feet two inches round the middle.

FOOD OF THE WHALE.—The number of small medusæ in some parts of the Greenland seas is so great, that in a cubic inch, taken up at random, there are no less than sixty-four. At this rate, the number in a cubic mile would be such, that it would have required 80,000 persons from the creation to complete the enumeration. The medusæ form the chief food of whales.

FECUNDITY OF RATS.—"One pair of rats," says a rat-catcher, "with their progeny, will produce in three years no less a number than 646,808 rats, which will consume day by day as much food as 64,680 men."

FECUNDITY OF PARTRIDGES.—Partridges pair towards the end of February. The hen lays from fifteen to upwards of twenty eggs, making her nest on the ground, with grass or leaves, in a clover or corn field; the young birds run as soon as hatched, sometimes even with a portion of the shell adhering to their bodies. The fecundity of these birds is astonishing: in 1823 a covey of twenty-two birds was found; but, although a covey so individually numerous as the one just mentioned is not often met with, yet there are instances of a still more surprising fecundity. In the year 1798, on a farm belonging to Mr. Pratt, near Terling, in Essex, a partridge's nest was found in a fallow field, containing thirty-three eggs. Of these twenty-three were hatched, and the whole went off with the hen; and of the remaining eggs four more had live birds in them. In 1798 the nest of a partridge was found near Elborough, in Somersetshire, containing twenty-eight eggs; and in June, 1801, at Mr. Clarke's, Welton-place, Nottinghamshire, a partridge nest, containing thirty-three eggs, was found in one of the plantations. Thus, then, in manors well-stocked and carefully preserved, the increase of a single season, even upon a moderate scale, may easily be conceived.

CURIOUS BATTLE.—The following account of a conflict between a snake and a musk rat has been supplied us by an eye-witness: the snake was, we presume, not poisonous, a circumstance known, in all likelihood, to its assailant:—"I saw a combat between a small snake and a musk rat, the latter having hold of the tail of the reptile and shaking it vigorously, the snake making great exertions to get away from its foe, occasionally turning its head half round towards its enemy. Five or six persons were witnesses of the conflict, but the rat was so intent upon his work that no notice whatever was taken of the bystanders. At last the snake made for one of the doors, and in spite of the efforts of the rat, managed to get between the edge of the door (which was shut) and the sill, and so escaped. The rat hunted backwards and forwards, as a dog would have done after a hare or rabbit, and when we moved to see what had become of the snake, the rat departed according to its custom."—*Bombay Times.*

MIGRATION OF GRASSHOPPERS.—A paper published at Turenbull, Ohio, states that myriads of grasshoppers were seen emigrating on the wing, making their way south, a few hundred feet above the earth.

SWORDFISH.—A fisherman, of Spalding, recently caught a swordfish in Fosdyke Wash. It was ten feet long, and the weapon in its upper jaw is described as being as hard as steel and pointed like a sword.